

(51)Int.Cl.

H01L 21/20 H01L 21/203 H01L 21/205 H01L 27/15

(21)Application number :

04-122818

(71)Applicant : AMERICAN TELEPH &
TELEGR CO <ATT>

(22)Date of filing :

17.04.1992

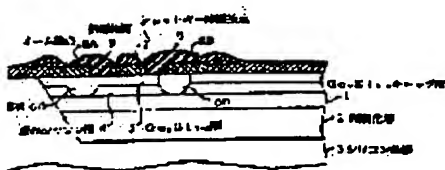
(72)Inventor : BRASEN DANIEL
FITZGERALD JR EUGENE A
GREEN MARTIN L
XIE YA-HONG

(30)Priority

Priority number :

91 690429 Priority 24.04.1991 Priority US
date : country :

(54) SEMICONDUCTOR DEVICE AND PRODUCING METHOD THEREFOR



(57)Abstract:

PURPOSE: To grow a large area hetero body structure of hierarchized GexSi1-x alloy having a low-level threading transfer defect on silicon by growing germanium-silicon alloy at a high temperature and increasing the germanium component with a gradient more than a specified value.

CONSTITUTION: A silicon substrate 3 is prepared. The substrate is a sort of standard (100) direction silicon wafer generally used for producing an integrated circuit. A large area hierarchized layer 2 of germanium-silicon alloy GexSi1-x is grown on the silicon substrate 3 at a high temperature. A growing process is chemical vapor deposition(CVD) or molecular beam epitaxy(MBE). A substrate growth starting temperature is in a range of 850 to 1100°C. Thus, the area of hierarchized alloy exceeds 1200 micrometer 2. The start composition is preferably pure silicon. The germanium forms GexSi1-x with the gradient less than about 25%/micron.

LEGAL STATUS

[Date of request for examination]

02.04.1993

[Date of sending the examiner's decision of
rejection][Kind of final disposal of application other than the
examiner's decision of rejection or application
converted registration]

[Date of final disposal for application]

[Patent number]

2792785

[Date of registration]

19.06.1998

[Number of appeal against examiner's decision of
rejection][Date of requesting appeal against examiner's
decision of rejection]

BEST AVAILABLE COPY

[Date of extinction of right]

BEST AVAILABLE COPY